UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/705,250	11/10/2003	William M. Hiatt	2269-5558A US (99-0253.00	3203

24247 7590 11/18/2005

TRASK BRITT
P.O. BOX 2550
SALT LAKE CITY, UT 84110

EXAMINER	
SHECHTMAN, SEAN P	
ART UNIT	**PAPER NUMBER**
2125	

DATE MAILED: 11/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/705,250
Filing Date: November 10, 2003
Appellant(s): HIATT ET AL.

TraskBritt, PC
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed October 26th 2005 appealing from the Office action mailed June 15th 2005. The examiner respectfully notes that applicant inadvertently refers to an

incorrect application serial number at the upper right hand corner of every page in the appeal brief. The instant application is serial number 10/705,250. The examiner respectfully notes that applicant inadvertently refers to another incorrect application number in the claims appendix of the appeal brief. The instant application serial number is 10/705,250, thus ending in '250.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

3,889,355	Aronsatein	6-1975
4,027,246	Caccoma	5-1977

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-23 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 3,889,355 to Aronsatein.

Referring to claims 1, 12, and 15, Aronsatein teaches a programmable material consolidation system (Col. 16, lines 1-68), comprising: at least one fabrication site for fabricating one or more objects using a programmed material consolidation process (Col. 26, lines 14-19; Col. 6, lines 3-49; Col. 11, lines 10-44); and a substrate handling system configured to introduce one or more substrates into the at least one fabrication site and remove the one or more substrates from the fabrication site (Col. 26, lines 14-36).

Referring to claims 2 and 13, Aronsatein teaches the programmable material consolidation system of claim 1, wherein the substrate handling system comprises a rotary feed system (Col. 9, lines 1-14).

Referring to claims 3 and 14, Aronsatein teaches the programmable material consolidation system of claim 1, wherein the substrate handling system comprises a linear feed system (Col. 26, lines 14-36).

Referring to claims 4 and 16, Aronsatein teaches the programmable material consolidation system of claim 1, wherein the at least one fabrication site comprises a plurality of fabrication sites (Col. 26, lines 14-36).

Referring to claims 5 and 17, Aronsatein teaches the programmable material consolidation system of claim 4, wherein the substrate handling system is configured to introduce the one or more substrates into each of the plurality of fabrication sites (Col. 26, lines 14-36).

Referring to claims 6 and 18, Aronsatein teaches the programmable material consolidation system of claim 1, further comprising: a cleaning component for cleaning the one or more substrates (Col. 8, lines 65-68).

Referring to claims 7 and 19, Aronsatein teaches the programmable material consolidation system of claim 6, wherein the substrate handling system is configured to transport the one or more substrates having at least one feature fabricated thereon from the at least one fabrication site to the cleaning component (Col. 8, lines 65-68).

Referring to claims 8 and 20, Aronsatein teaches the programmable material consolidation system of claim 7, wherein the at least one fabrication site comprises a plurality of fabrication sites (Col. 11, lines 59-68; Col. 18, lines 61-68).

Referring to claims 9 and 21, Aronsatein teaches the programmable material consolidation system of claim 8, wherein the substrate handling system is configured to transport substrates from each of the plurality of fabrication sites to the cleaning component (Col. 11, lines 59-68).

Referring to claims 10 and 22, Aronsatein teaches the programmable material consolidation system of claim 9, further comprising: at least one processing element for controlling operation of the substrate handling system (Col. 24, lines 17-41).

Referring to claims 11 and 23, Aronsatein teaches the programmable material consolidation system of claim 10, wherein the at least one processing element is configured to orchestrate movement of substrates from the plurality of fabrication sites to the cleaning component (Col. 24, lines 17-41).

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 24-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 4,027,246 to Caccoma in view of U.S. Pat. No. 3,889,355 to Aronsatein.

Referring to claims 24, Caccoma teaches a programmed material consolidation method for fabricating objects (Col. 8, lines 25-34), comprising: selecting at least one first substrate; introducing the at least one first substrate into a first fabrication site with a substrate handling system associated therewith; selecting at least one second substrate; and introducing the at least one second substrate into a second fabrication site with the substrate handling system (See Abstract).

Referring to claim 25, Caccoma teaches the method of claim 24, wherein introducing the at least one second substrate is effected while one or more objects are being fabricated on the at least one first substrate (Col. 11, lines 51-55).

Referring to claim 26, Caccoma teaches the method of claim 24, further comprising: selecting at least one third substrate; and introducing the at least one third substrate into a third fabrication site with the substrate handling system (Col. 11, lines 62- Col. 12, line 4).

Referring to claim 27, Caccoma teaches the method of claim 26, wherein introducing the at least one third substrate is effected while one or more objects are being fabricated on both the at least one first substrate and the at least one second substrate (Col. 11, lines 51-55).

Referring to claim 28, Caccoma teaches the method of claim 24, further comprising: removing the at least one first substrate from the first fabrication site with the substrate handling system while one or more objects are being fabricated on the at least one second substrate (Col. 11, lines 51-55).

Referring to claim 24, Caccoma teaches all the limitations set forth above, and Caccoma clearly cross references the semiconductor wafer processing sectors of Aronsatein several times, for example, in column 7, lines 13-15 and column 8, lines 25-34. However, Caccoma fails to clearly teach that semiconductor wafer processing sectors of Aronsatein fabricate at least a portion of at least one object by a programmed material consolidation process. The examiner respectfully submits that the claims, as such, do not even require that the portion of the object fabricated, the object, or the fabricating be related to any substrates selected or introduced.

Referring to claims 29 and 32, Caccoma teaches all the limitations set forth above, however, fails to clearly teach transporting the a substrate to a cleaning component with the substrate handling system following removing of the substrate. Referring to claims 30 and 33, Caccoma teaches all the limitations set forth above, however, fails to clearly teach introducing another substrate into a fabrication site with the substrate handling system following removing of

a substrate. Referring to claim 31, Caccoma teaches all the limitations set forth above, however, fails to clearly teach removing a substrate from a fabrication site with the substrate handling system while an object is being fabricated on both the substrate and another substrate.

However, referring to claim 24, the Aronsatein reference that is cross referenced by the Caccoma reference and shares a common assignee with Caccoma, teaches analogous art, wherein the same semiconductor wafer processing sectors referenced by Caccoma fabricate at least a portion of at least one object by a programmed material consolidation process (Col. 26, lines 14-19; Col. 6, lines 3-49; Col. 11, lines 10-44). Referring to claims 29 and 32, Aronsatein teaches transporting the a substrate to a cleaning component with the substrate handling system following removing of the substrate (Col. 8, lines 65-68); referring to claims 30 and 33, Aronsatein teaches introducing another substrate into a fabrication site with the substrate handling system following removing of a substrate (Col. 24, lines 17-41); and referring to claim 31, Aronsatein teaches removing a substrate from a fabrication site with the substrate handling system while an object is being fabricated on other substrates (Col. 9, lines 14-49; Col. 10, lines 35-45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time that the invention was made to modify the teachings of Caccoma with the teachings of Aronsatein, who's patent is cross referenced several times in Caccoma. One of ordinary skill in the art would have been motivated to combine these references because Aronsatein teaches a complete manufacturing system capable of fast turn-around, maximized yield and low in-process inventory with interdependent minimization of processing cycle time and maximization of completed part

yield (Col. 1, lines 4-19). Furthermore, Aronsatein clearly teaches "parts of the photolithographic operations are distributed throughout the line in a manner designed to maximize yield and minimize control complexity" (Col. 6, lines 46-49). Further still, Aronsatein clearly teaches "Each of the sectors is also envisioned to be under suitable control, either by general purpose computer or a hard-wired system, to specify and maintain process parameters, and to maintain proper flow of work-pieces for the sector." (Col. 3, lines 42-47).

(10) Response to Argument

The examiner and applicant appear to agree that one of ordinary skill in the art would readily understand that a photolithography process is that in which material is consolidated. Applicant argues that Aronsatein does not teach consolidation of material under control of a program or a computer. Applicant argues that Aronsatein does not teach any process sectors configured for effecting a programmed material consolidation process.

The examiner respectfully submits that the Final office action clearly sets forth that the Aronsatein reference clearly does teach a programmed material consolidation process. For board's convenience the examiner has provided these portions of the Final office action below, which clearly states, in part:

"Referring to claims 1, 12, and 15, Aronsatein teaches a programmable material consolidation system (Col. 16, lines 1-68), comprising: at least one fabrication site for fabricating one or more objects using a programmed material consolidation process (Col. 26, lines 14-19; Col. 6, lines 3-49; Col. 11, lines 10-44)" (Page 3 of the Final office action).

"Aronsatein teaches a complete manufacturing system capable of fast turn-around, maximized yield and low in-process inventory with interdependent minimization of processing cycle time and maximization of completed part yield (Col. 1, lines 4-19). Furthermore, Aronsatein clearly teaches "parts of the photolithographic operations are distributed throughout the line in a manner designed to maximize yield and minimize control complexity" (Col. 6, lines 46-49). Further still, Aronsatein clearly teaches "Each of the sectors is also envisioned to be under suitable control, either by general purpose computer or a hard-wired system, to specify and

maintain process parameters, and to maintain proper flow of work-pieces for the sector." (Col. 3, lines 42-47)." (Page 8 of the Final office action).

For the board's convenience the examiner has reproduced several portions of the Aronsatein reference that were cited above in the Final office action, which clearly states, in part:

> "Normally, a plant erected to incorporate the manufacturing system of this mention will be under computer control, and be incorporated in the basic control system unit 112 of FIG. 9. In such an environment, any associated memory of the computer, e.g. tape or disc, may have entered into it a plurality of part programs consisting of a series of instructions specifying the required operations for a work-piece, together with the necessary process parameters within each processing sector as well as means for self-adaptive automatic processing within the sector or between processing sectors. In conjunction with specifying the required sequence of processing operations to be performed, the program will also specify a corresponding preselection of the sequence of process sectors through which a work-piece must be processed to effect its desired total processing. Each part program will be identified by a part number, or other suitable codes which uniquely associates the series of operation to be performed with the particular part on which the operations are to be performed. In addition, the control system will include provision for the storage of additional part programs for a new part number, or modification of existing part programs as required for existing part numbers.
>
> To initiate operation, the control system is informed e.g. by an operator at a console or terminal, of the part number to be processed, whereby the file of the computer memory will be searched for the part program, associated with the part number, for transmittal to the control system. After the transmittal of the part program to the control system, the functional units of each processing sector will be activated to the status required for processing of the work-piece. In conjunction with the main control system, each sector can be provided with its own individual control for setting process parameters and for wafer flow within the sector. A sector may be operated such that one can present a wafer at the input pedestal, and it will be processed through to the output pedestal, the sector controls providing for routing of the wafer through the process steps in that sector, as well as control of parameters within the sector, as for example, temperature, gas flows, etc. such as employed for semiconductor processing.
>
> Each sector control system can communicate with the main control system, which can monitor sector-to-sector workpiece flow, provide adapted control functions, and record required parametric data. In addition, the main control unit can communicate with those factory systems which support the functions of production control design and process automation, quality testing, etc.
>
> The control of process parameters, e.g. temperatures, flows, etc., can

> be accomplished by standard analog or digital means. Selection of the particular method of control will normally be made on a basis of precision, reliability, cost, compatibility with the unit being controlled and other standard engineering considerations. In some cases it may be desirable to have the main control system set the parameter levels. For example, in a semiconductor processing system, the setting of an etch time can be made a function of the thickness of material measured in the previous sector on the wafer." (Col. 16, lines 1-68).

In response to applicants argument that Aronsatein does not teach consolidation of material under control of a program or a computer and Aronsatein does not teach any process sectors configured for effecting a programmed material consolidation process, the examiner respectfully disagrees. Aronsatein clearly teaches "the manufacturing system of this mention will be under computer control" and "programs consisting of a series of instructions specifying the required operations for a work-piece, together with the necessary process parameters within each processing sector as well as means for self-adaptive automatic processing within the sector or between processing sectors." (citations listed above). The examiner respectfully submits that Aronsatein clearly teaches consolidation of material under control of a program or a computer and process sectors configured for effecting a programmed material consolidation process.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Sean P. Shechtman
Examiner
Art Unit 2125

SPS
November 2, 2005

Conferees:

Leo Picard (SPE AU2125)

LEO PICARD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

Anthony Knight (SPE AU2121)